

REMARKS

Claims 23, 33, 43, and 44 have been amended. Claims 1, 3-11, 13-19, 21-26, 28-34, and 36-44 remain in the application for consideration. In view of the following remarks, Applicant respectfully requests that the rejections be withdrawn and the application be forwarded on to issuance.

Interview Summary

Applicant's representative, Lance Sadler, wishes to thank Examiner Hetul Patel, for two telephone interviews, one on October 9th, 2007 and another on October 23rd, 2007.

During the interviews, Applicant's representative and the Examiner discussed the Ban reference. Applicant submitted many arguments against the Examiner's use of the Ban reference. While no agreement was reached, the examiner agreed that Applicant's argument that Ban teaches away from Applicant's claims, may be enough to overcome the Ban reference. Examiner Patel suggested that Applicant submit a response that details this argument. The examiner agreed to call Applicant in the event that Applicant's argument failed to overcome the Ban reference.

Rejections under § 103

Claims 1, 5-11, 15-18, 22-25, 29-33 and 37-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,799,168 to Ban ("Ban") in view of U.S. Patent No. 6,725,321 to Sinclair et al. ("Sinclair") further in view of U.S. Patent No. 5,875,478 to Blumenau ("Blumenau") and U.S. Patent No. 6,253,281 to Hall ("Hall").

Claims 3-4, 13-14, 19, 21, 26, 28, 34, and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ban in view of Sinclair and in view of Blumenau, Hall and U.S. Patent No. 6,493,807 to Martwick ("Martwick").

Claims 1, 5-11, 15-18, 22-25, 29-33, and 37-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ban in view of Sinclair, in view of Hall and further in view of Blumenau.

Claims 3-4, 13-14, 19, 21, 26, 28, 34, and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ban in view of Sinclair, further in view of Hall, further in view of Blumenau and further in view of Martwick.

5 **The Claims**

Claim 1 recites one or more computer storage media comprising a flash memory driver that is executable by a computer to interface between a file system and one or more flash memory media, *the flash memory driver comprising* [emphasis added]:

- 10 • *flash abstraction logic* that is invokable by the file system to manage flash memory operations without regard to the type of the one or more flash memory media; and
- 15 • *flash media logic* configured to interact with different types of the flash memory media, wherein the flash media logic is programmable to permit users to match particular medium requirements of a specific manufacturer;
- 20 • wherein the flash abstraction logic invokes the flash media logic to perform memory operations that are potentially performed in different ways depending on the type of the flash memory media, and further wherein the flash memory driver is flash memory medium agnostic, and wherein one of the flash memory operations includes performing wear-leveling operations associated with the flash memory medium by way of circular and continuous advancement of a write pointer, and wherein the flash memory driver resides as a component within an operating system
- 25 of the computer.

 In making out the rejection of this claim, the Office argues that claim 1 is rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. The Office argues that Ban teaches:

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the flash memory driver comprising:

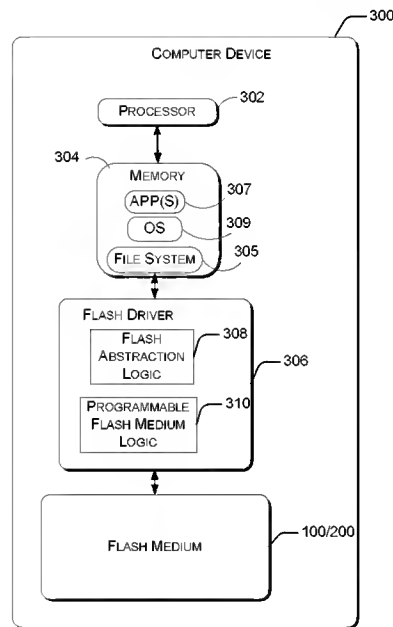
- 35 • *flash abstraction logic* that is invokable by the file system to manage flash memory operations without regard to the type of the one or more flash memory media; and
- *flash media logic* configured to interact with different types of the flash memory media, wherein the flash media logic is programmable to permit users to match particular medium requirements of a specific manufacturer;

Applicant disagrees and submits that Ban does not teach or in any way suggest a flash memory *driver* comprising *flash abstraction logic* and *flash media logic*. In fact, as will be discussed below, Ban teaches directly away from a flash memory driver comprising

5 flash abstraction logic and flash media logic.

Claim 1 is supported by Fig. 3 of Applicant's disclosure, which depicts a flash memory driver comprising flash abstraction logic and flash media logic. Accordingly, in order to further illustrate the subject matter of claim 1, and to assist the Office, Fig. 3 of Applicant's disclosure is reproduced below:

Fig. 3 of Applicant's Disclosure



As recited in claim 1 (and illustrated above) Applicant's flash memory driver

15 comprises both flash abstraction logic and flash media logic. Claim 1 further defines both flash abstraction logic and flash media logic. Claim 1 recites that the flash abstraction logic "is invocable by the file system to manage flash memory operations *without regard to the one or more flash memory media*, and that the flash media logic is "configured to interact with different types of the flash memory media" and "programmable to permit

20 users to match particular medium requirements of a specific manufacturer". Thus the

flash memory driver of claim 1 (which includes both flash abstraction logic and flash media logic) is programmable to *permit users to match particular medium requirements of a specific manufacturer*.

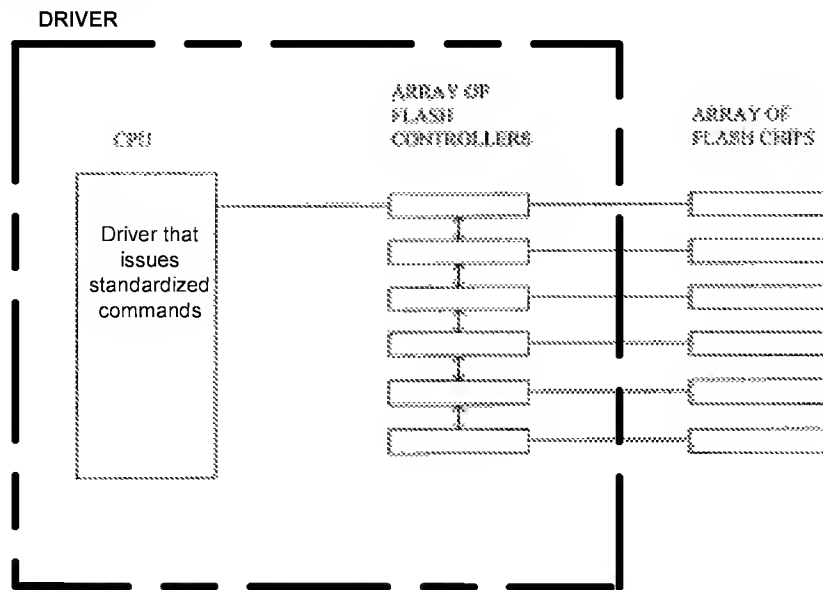
5 In contrast, Ban teaches that the CPU is configured with a “*standardized* driver” that is configured to “produce the commands necessary to perform the flash memory tasks in a uniform, standardized format.” (Ban, col. 2, lines 41-45.) In other words, Ban teaches that the flash driver produces standardized (or generic commands) which is different than Applicant’s driver which “is programmable to permit users to match particular medium requirements of a specific manufacturer”. In order to interpret the
10 generic commands, Ban teaches that each flash chip is equipped with “a controller capable of interpreting signals from a standardized driver into commands particular to the flash unit.” (Ban, col. 2, lines 39-41.) Ban teaches that “in this way, the *problem* of conforming to the particular requirements of the flash chip is *moved from the driver* installed on the CPU *onto the controller installed on the flash unit*.” (Ban, col. 2, lines
15 43-47, Emphasis Added.) Accordingly, Ban does not teach or in any way suggest a flash memory driver that includes flash media logic which is “programmable to permit users to match particular medium requirements of a specific manufacturer” because Ban specifically teaches that (1) the driver produces standardized commands and (2) that the problem of conforming to the requirements of the flash chip is moved to the flash unit
20 (not the flash driver).

During the interview conducted on October 23rd, 2007, the Office argued that Ban could be altered to anticipate claim 1 by drawing a box around the CPU and the array of flash controllers that is depicted in Fig. 2 of Ban. The Office argued that if this black box were considered “the driver” that Ban would anticipate a flash memory driver comprising
25 flash abstraction logic and flash media logic, as claimed.

In order to illustrate the examiner’s argument, Fig. 2 of Ban is reproduced below, with a black box drawn around the CPU and the array of flash controllers:

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Fig. 2 of Ban (Altered to Depict a Driver that Includes Flash Controllers)



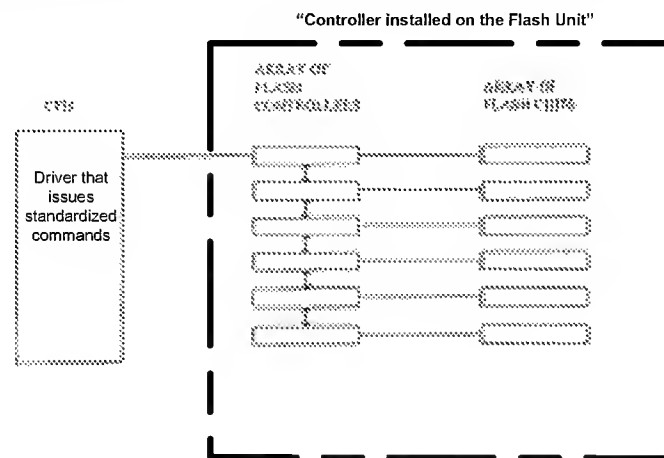
In the drawing above, Fig. 2 of Ban has been altered to depict a driver that comprises a standardized driver and an array of flash controllers. However, Ban teaches directly away from making this combination. Specifically, Ban teaches that “the CPU [which includes the driver] will produce commands necessary to perform the flash memory tasks in a uniform, standardized format.” (Ban, col. 2, lines 42-44.) If Ban were to be altered, as illustrated above (and suggested by the Office), Ban would teach a driver that issues commands in a specific format (not a standardized format) because Ban teaches that the controller is configured to produce commands “particular to the flash unit”. (see Ban, col. 2, lines 41-42.)

Furthermore, Ban teaches directly away from making the alteration suggested by the Office because Ban teaches that “in this way, the *problem* of conforming to the particular requirements of the flash chip is moved from the driver installed on the CPU onto the controller installed on the flash unit.” (Ban, col. 2, lines 43-47, Emphasis Added.) If Ban were to be altered, as suggested by the Office, then Ban would teach that the problem of conforming to the particular requirements of the flash chip is moved to the **flash driver** (and not the controller installed on the *flash unit*). In other words, if the controllers were moved from the flash unit to the driver, then the flash driver (and not the

flash unit) would be responsible for conforming to the particular requirements of the flash chip.

If anything, a black box should be drawn around the array of flash controllers and the array of flash chips, since Ban clearly teaches that the “*controller is installed on the flash unit.*” (Ban, col. 2, line 47.) In order to assist the Office, Fig. 2 of Ban has been modified in this manner, below:

Fig. 2 of Ban (Modified to Depict a Controller Installed on the Flash Unit)



By drawing a black box around the flash controllers and flash chips, Fig. 2 depicts that the controller is installed on the flash unit, which is in line with the teachings of Ban (“controller installed on the flash unit”). Modifying Fig. 2 in this manner also helps to show that Ban does not contemplate flash controllers residing on the flash driver. Ban simply teaches a simple driver, and places controllers on the flash unit, instead. Accordingly, Ban does not teach or in any way suggest a flash driver that comprises flash abstraction logic and flash media logic. Furthermore, as discussed above, altering Ban by placing the controllers in the flash driver would go directly against the teachings of Ban, and would destroy the very purpose of Ban which is to move the problem of conforming to the particular requirements of the flash chip from the driver to the flash unit. To this extent, Blumenau, Sinclair, and Hall add nothing of significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination suggested by the Office fails to teach all of the elements of claim 1. Thus, for at least the reasons discussed above, claim 1 is allowable.

Claims 3-8 depend from claim 1 and thus are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 8, are neither disclosed nor suggested
5 by the references of record.

In addition, to the extent that claim 1 is allowable, the rejection of claims 3 and 4 over the combination of Ban, Sinclair, Blumenau, Hall, and Martwick, is not seen to add anything of significance.

Claim 9 recites *a flash driver* embodied on a computer-readable storage medium,
10 comprising [emphasis added]:

- *flash abstraction logic*, interposed between a file system and a flash memory medium, configured to:
 - (a) map a logical sector status from the file system to a physical
15 sector status of the flash memory medium; and
 - (b) maintain memory requirements associated with operating the flash memory medium;
- wherein the flash driver is located remote from the flash memory medium, and wherein the memory requirements include managing wear-leveling operations associated with the flash memory medium by way of
20 circular and continuous advancement of a write pointer, and wherein the flash driver resides as a component within an operating system of a computer;
- *flash medium logic* that is programmable to permit users to match
25 particular medium requirements of a specific manufacturer.

In making out the rejection of this claim, the Office argues that claim 9 is rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. Applicant disagrees and submits that Ban does not teach or in any way suggest a flash driver
30 embodied on a computer-readable storage medium, comprising: *flash abstraction logic* [and] “*flash medium* logic that is programmable to permit users to match particular medium requirements of a specific manufacturer.” Ban simply teaches a standardized driver that produces commands in a uniform, standardized format. (see Ban, col. 2, lines 35-50.) To this extent, Sinclair, Blumenau, and Hall add nothing of significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination of Ban, Sinclair, Blumenau, and Hall fails to teach all of the elements of claim 9. As such, claim 9 is allowable.

5 **Claims 10-11 and 13-15** depend from claim 9 and thus are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 9, are neither disclosed nor suggested by the references of record.

10 In addition, to the extent that claim 9 is allowable, the rejection of claims 13 and 14 over the combination of Ban, Sinclair, Blumenau, Hall, and Martwick, is not seen to add anything of significance.

Claim 16 recites *a flash driver* embodied on a computer-readable storage medium, comprising [emphasis added]:

- 15 • *user programmable flash medium logic*, configured to read, write and erase data to and from a flash memory medium, wherein the flash medium logic is programmable to permit users to match particular flash medium requirements of a specific manufacturer; and
- 20 • *flash abstraction logic*, interposed between a file system and flash memory medium to maintain universal requirements for the operation of the flash memory medium;
- 25 • wherein the flash memory driver is flash memory medium agnostic, and wherein the universal requirements include managing wear-leveling operations associated with the flash memory medium by way of circular and continuous advancement of a write pointer, and wherein the flash driver is defined as a component within an application.

30 In making out the rejection of this claim, the Office argues that claim 16 is rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. Applicant disagrees and submits that Ban does not teach or in any way suggest a flash driver embodied on a computer-readable storage medium, comprising: *user programmable flash medium logic* and *flash abstraction logic*. Ban simply teaches a standardized driver that produces commands in a uniform, standardized format. (see Ban, col. 2, lines 35-50.) To this extent, Sinclair, Blumenau, and Hall add nothing of significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination of Ban, Sinclair, Blumenau, and Hall fails to teach all of the elements of claim 16. As such, claim 16 is allowable.

5 **Claims 17-19 and 21-22** depend from claim 16 and thus are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 16, are neither disclosed nor suggested by the references of record.

10 In addition, to the extent that claim 16 is allowable, the rejection of claims 19 and 21 over the combination of Ban, Sinclair, Blumenau, Hall, and Martwick, is not seen to add anything of significance.

Claim 23 has been amended, and as amended recites a processing device that uses a flash memory medium for storage of data, comprising [added language appears in bold italics]:

- 15 • a file system, configured to control data storage for the processing device;
- flash media logic, configured to perform physical sector operations to a flash memory medium based on physical sector commands, wherein the flash medium logic comprises a set of programmable entry points that can be implemented by a user to interface with any type of flash memory medium selected, wherein the flash media logic is programmable to permit users to match particular flash medium requirements of a specific manufacturer; and
- 20 • flash abstraction logic, configured to maintain flash memory requirements that are necessary to operate the flash memory medium, wherein the flash memory requirements include managing wear-leveling operations associated with the flash memory medium by way of circular and continuous advancement of a write pointer, wherein the flash media logic and the flash abstraction logic ***comprise a flash driver***.
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30 In making out the rejection of this claim, the Office argues that claim 23 is rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. Claim 23 has been amended, and in light of this amendment Applicant submits that Ban does not teach or in any way suggest wherein the flash media logic and the flash abstraction logic ***comprise a flash driver***. Ban simply teaches a standardized driver that produces
35 commands in a uniform, standardized format. (see Ban, col. 2, lines 35-50.) To this extent, Sinclair, Blumenau, and Hall add nothing of significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination of Ban, Sinclair, Blumenau, and Hall fails to teach all of the elements of claim 23. As such, claim 23 is allowable.

5 **Claims 24-26 and 28-32** depend from claim 23 and thus are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 23, are neither disclosed nor suggested by the references of record.

10 In addition, to the extent that claim 23 is allowable, the rejection of claims 26 and 28 over the combination of Ban, Sinclair, Blumenau, Hall, and Martwick, is not seen to add anything of significance.

Claim 33 has been amended, and as amended recites in a processing device that uses a flash memory medium for storage of data, a method for driving the flash memory medium, comprising [added language appears in bold italics]:

- 15 • managing rules associated with operating the flash memory medium in a flash abstraction logic, ***wherein the flash abstraction logic comprises part of a flash driver***; and
- 20 • issuing physical sector commands directly to the flash memory medium from a flash medium logic, wherein the flash medium logic is programmable to permit users to match particular flash medium requirements of a specific manufacturer, ***and wherein the flash medium logic comprises part of the flash driver***;
- 25 • wherein the method is flash memory medium agnostic, and wherein one of the rules includes managing wear-leveling operations associated with the flash memory medium by way of circular and continuous advancement of a write pointer, and wherein the method is performed by way of a component residing within an operating system of the processing device.

30 In making out the rejection of this claim, the Office argues that claim 33 is rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. Claim 33 has been amended, and in light of this amendment Applicant submits that Ban does not teach or in any way suggest “managing rules associated with operating the flash memory medium in a flash abstraction logic, ***wherein the flash abstraction logic comprises part***

35 ***of a flash driver***; and issuing physical sector commands directly to the flash memory medium from a flash medium logic, wherein the flash medium logic is programmable to

permit users to match particular flash medium requirements of a specific manufacturer, *and wherein the flash medium logic comprises part of the flash driver*”. Ban simply teaches a standardized driver that produces commands in a uniform, standardized format. (see Ban, col. 2, lines 35-50.) To this extent, Sinclair, Blumenau, and Hall add nothing of
5 significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination of Ban, Sinclair, Blumenau, and Hall fails to teach all of the elements of claim 33. As such, claim 33 is allowable.

Claims 34 and 36-41 depend from claim 33 and thus are allowable as depending
10 from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 33, are neither disclosed nor suggested by the references of record.

In addition, to the extent that claim 33 is allowable, the rejection of claims 34 and 36 over the combination of Ban, Sinclair, Blumenau, Hall, and Martwick, is not seen to
15 add anything of significance.

Claim 42 recites a computer storage media for a flash driver, comprising computer-executable instructions that, when executed, direct the flash driver to provide an interface between a file system, selected from one of a plurality of different file systems, and a flash memory medium, selected from one of a plurality of different flash
20 memory media, wherein the flash driver is located as a component within an operating system and is remote from the flash memory medium, and wherein wear-leveling of the flash memory medium is performed by way of circular and continuous advancement of a write pointer, and *wherein the flash driver comprises programmable flash medium logic that is programmable to permit users to match particular flash medium requirements*
25 *of a specific manufacturer* [emphasis added].

In making out the rejection of this claim, the Office argues that claim 42 is rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. Applicant disagrees and submits that Ban does not teach or in any way suggest “wherein *the flash driver comprises programmable flash medium logic that is programmable to permit*
30 *users to match particular flash medium requirements of a specific manufacturer*”. Ban simply teaches a standardized driver that produces commands in a uniform, standardized

format. (see Ban, col. 2, lines 35-50.) To this extent, Sinclair, Blumenau, and Hall add nothing of significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination of Ban, Sinclair, Blumenau, and Hall fails to teach all of the
5 elements of claim 42. As such, claim 42 is allowable.

Claim 43 has been amended, and as amended recites a computer storage media for a flash driver, comprising computer-executable instructions that, when executed, direct the flash driver to [added language appears in bold italics]:

- 10 • provide an interface between a file system, selected from one of a plurality of different files systems, and a flash memory medium, selected from one of a plurality of different flash memory media; and
- manage a set of characteristics that are common to the plurality of different flash memory media at a flash abstraction logic;
- 15 • wherein the flash driver is flash memory medium agnostic, and wherein wear-leveling of the flash memory medium is performed by way of circular and continuous advancement of a write pointer, and wherein the flash driver resides as a component within an operating system, wherein the instructions provide programmable flash medium logic that is
- 20 programmable to permit users to match particular flash medium requirements of a specific manufacturer, ***wherein the flash abstraction logic and the flash medium logic comprise the flash driver.***

In making out the rejection of this claim, the Office argues that claim 43 is
25 rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. Claim 43 has been amended, and in light of this amendment Applicant submits that Ban does not teach or in any way suggest “***wherein the flash abstraction logic and the flash medium logic comprise the flash driver.***” Ban simply teaches a standardized driver that produces commands in a uniform, standardized format. (see Ban, col. 2, lines 35-50.) To this
30 extent, Sinclair, Blumenau, and Hall add nothing of significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination of Ban, Sinclair, Blumenau, and Hall fails to teach all of the elements of claim 43. As such, claim 43 is allowable.

Claim 44 has been amended, and as amended recites a computer storage media
35 for a flash driver, comprising computer-executable instructions that, when executed, direct the flash driver to [added language appears in bold italics]:

- provide an interface between a file system, selected from one of a plurality of different files systems, and a flash memory medium, selected from one of a plurality of different flash memory media;
- manage a set of characteristics that are common to the plurality of different flash memory media at a flash abstraction logic; and
- provide programmable entry points that can be optionally selected by a user to interface with the type of flash memory medium selected;
- wherein the flash driver is located as a component within an operating system and is remote from the flash memory medium and the flash driver is flash memory medium agnostic, and wherein wear-leveling of a flash memory medium is performed by way of circular and continuous advancement of a write pointer, wherein the instructions provide flash medium logic that is programmable to permit users to match particular flash medium requirements of a specific manufacturer, ***wherein the flash abstraction logic and the flash medium logic comprise the flash driver.***

In making out the rejection of this claim, the Office argues that claim 44 is rendered obvious by the combination of Ban, Sinclair, Blumenau, and Hall. Claim 44 has been amended, and in light of this amendment Applicant submits that Ban does not teach or in any way suggest “***wherein the flash abstraction logic and the flash medium logic comprise the flash driver.***” Ban simply teaches a standardized driver that produces commands in a uniform, standardized format. (see Ban, col. 2, lines 35-50.) To this extent, Sinclair, Blumenau, and Hall add nothing of significance.

Accordingly, the Office has failed to make out a *prima facie* case of obviousness because the combination of Ban, Sinclair, Blumenau, and Hall fails to teach all of the elements of claim 44. As such, claim 44 is allowable.

Conclusion

All of the claims are in condition for allowance. Accordingly, Applicant requests that the Office issue a Notice of Allowability. If the Office’s next anticipated action is to be anything other than issuance of a Notice of Allowability, Applicant respectfully requests a telephone call for the purpose of scheduling an interview.

Respectfully Submitted,

Dated: 10/29/2007

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